

FIG. 1

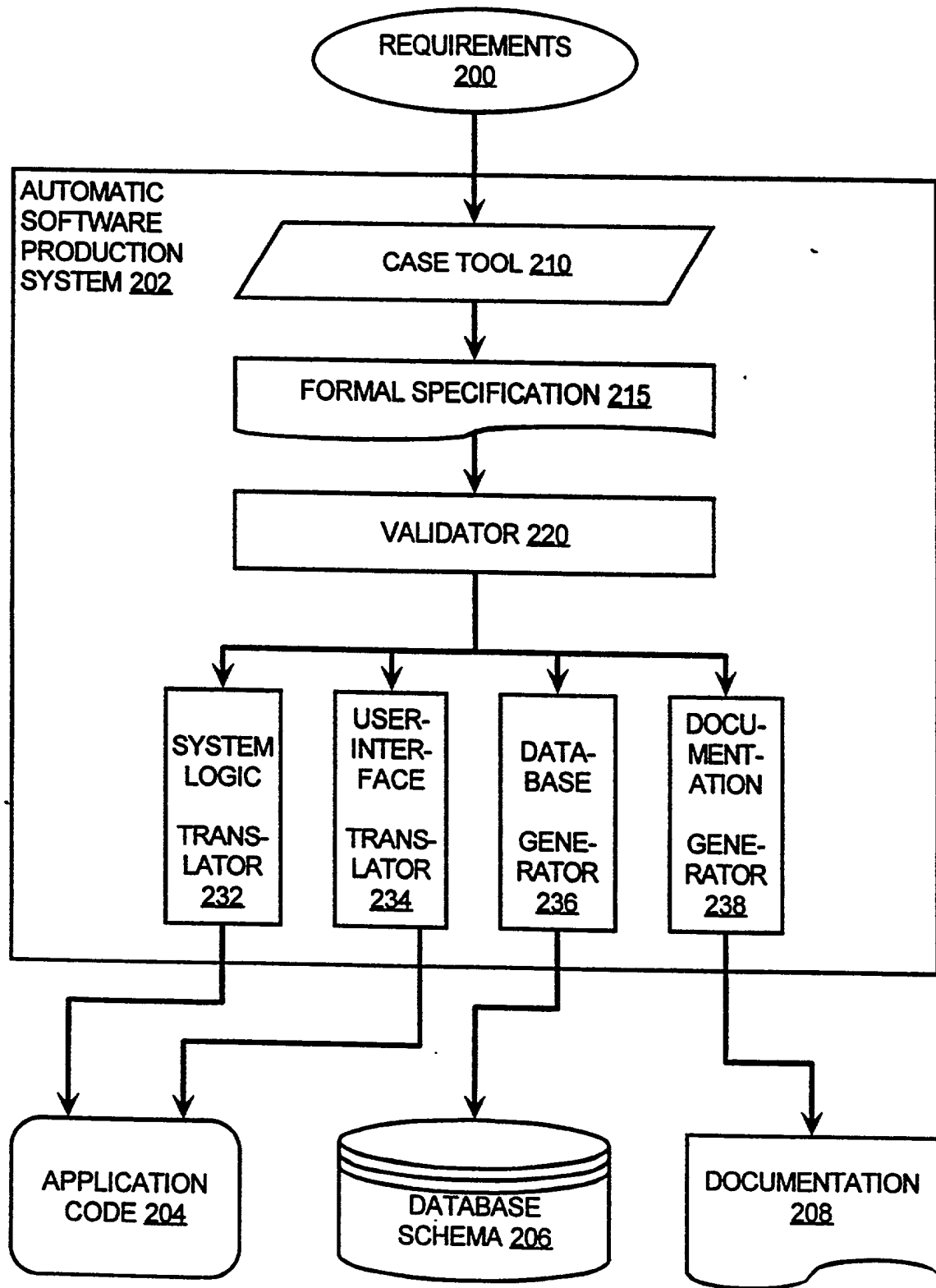


FIG. 2

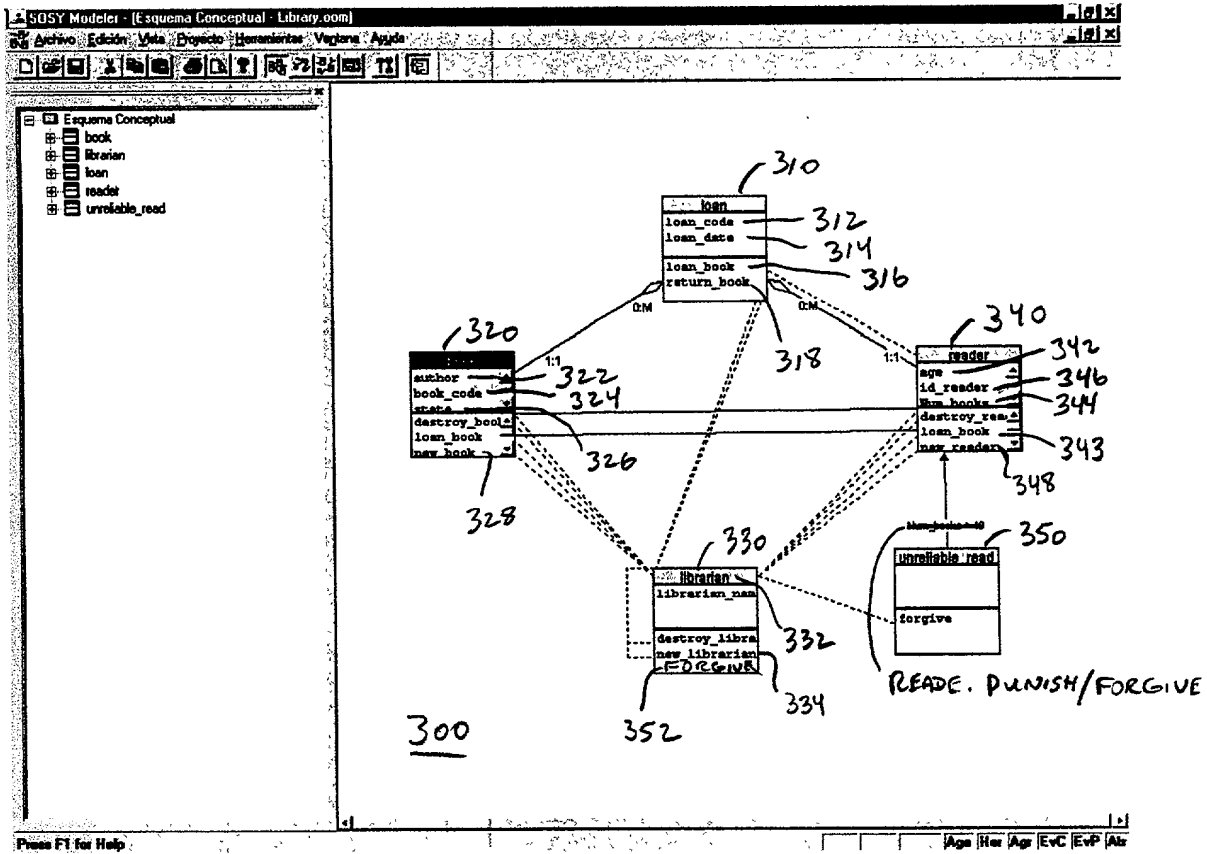


FIG. 3

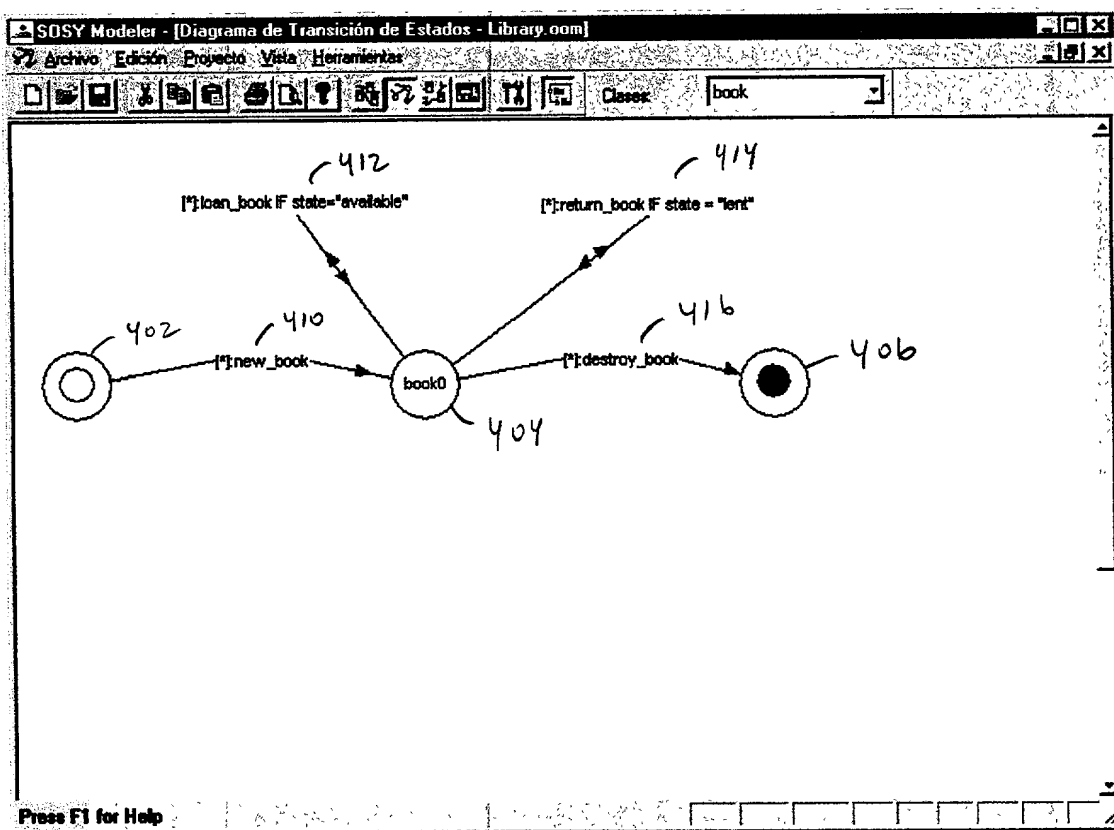


FIG. 4A

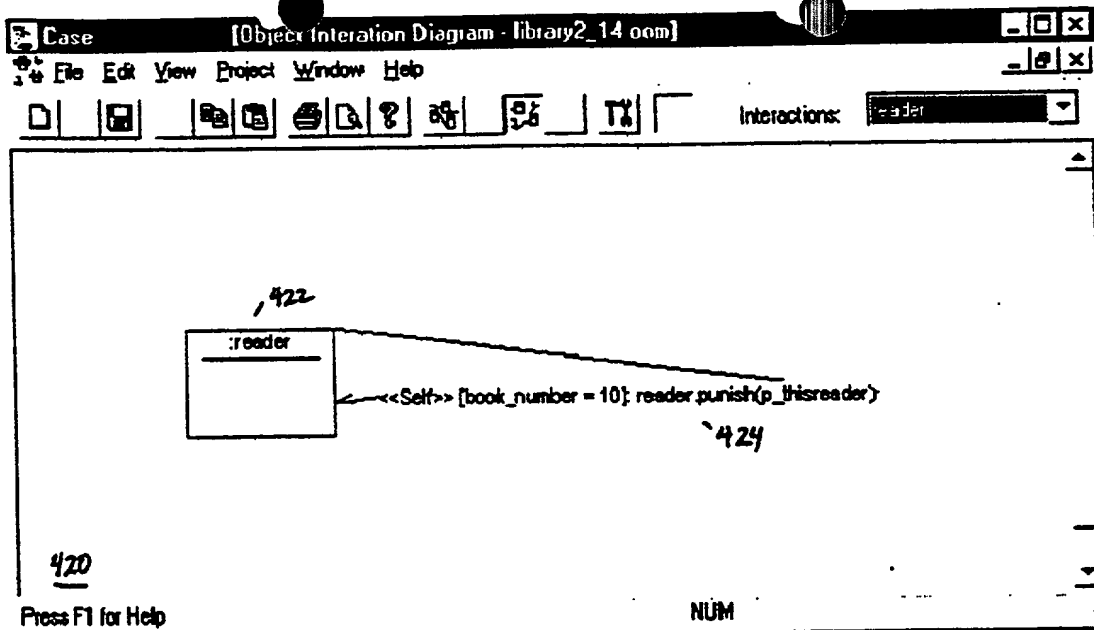


FIG. 4B

Functional Model

Class: reader Attribute: book_number

Event: loan_book Effect: 1 Condition:

return_book 1

Category: Purposeful State-independent Discrete-domain

Valuation Details:

Event: loan_book Action type: Increment

Valuation condition:

Effect of the event:

1

FIG. 5

FLOWCHART OF THE FUNCTIONS THAT ALL SPECIES OF SYSTEM LOGIC TRANSLATORS WILL PERFORM

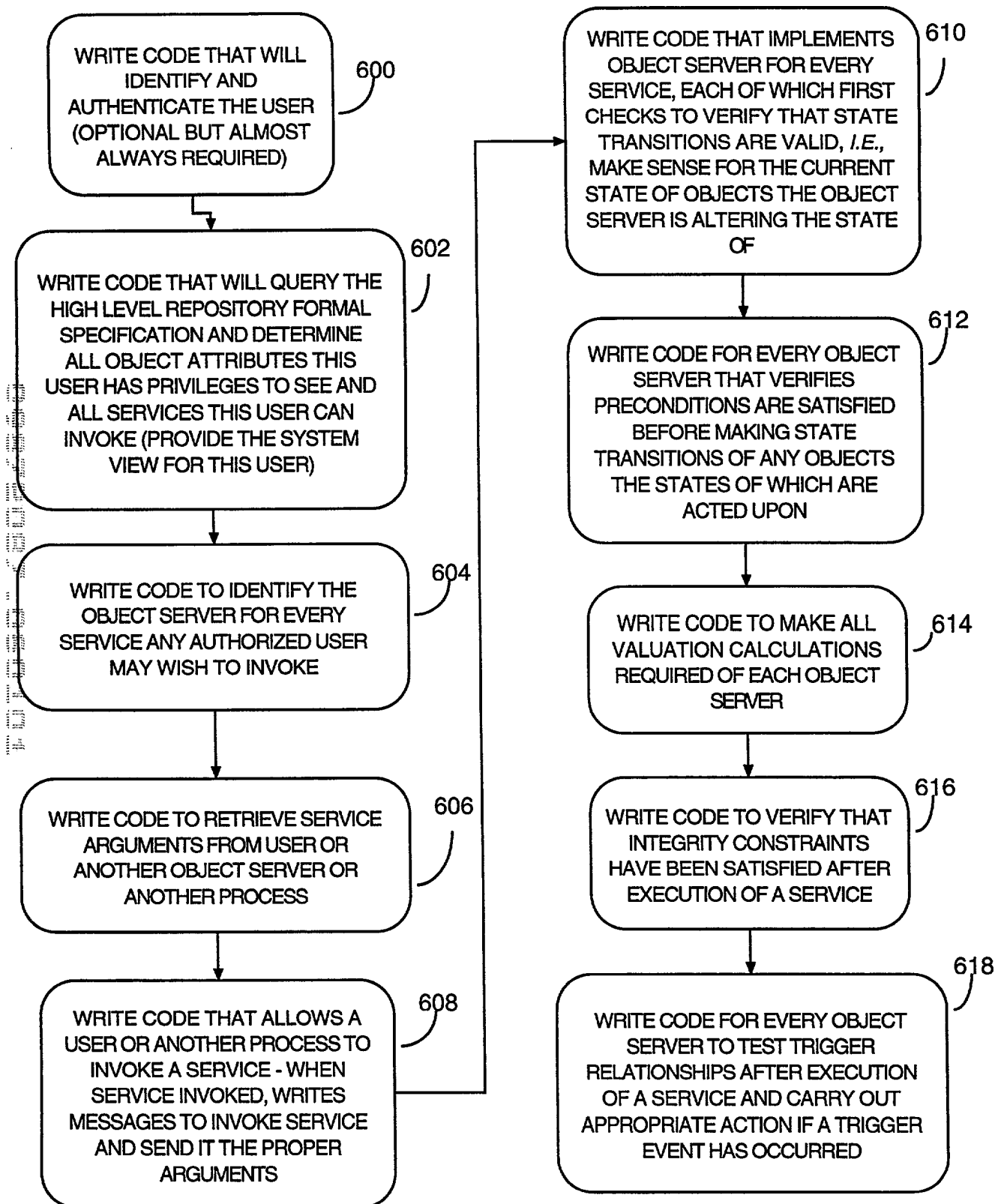


FIG. 6

FLOWCHART OF THE FUNCTIONS THAT ALL SPECIES IN THE USER INTERFACE
TRANSLATOR SUBGENUS WILL PERFORM

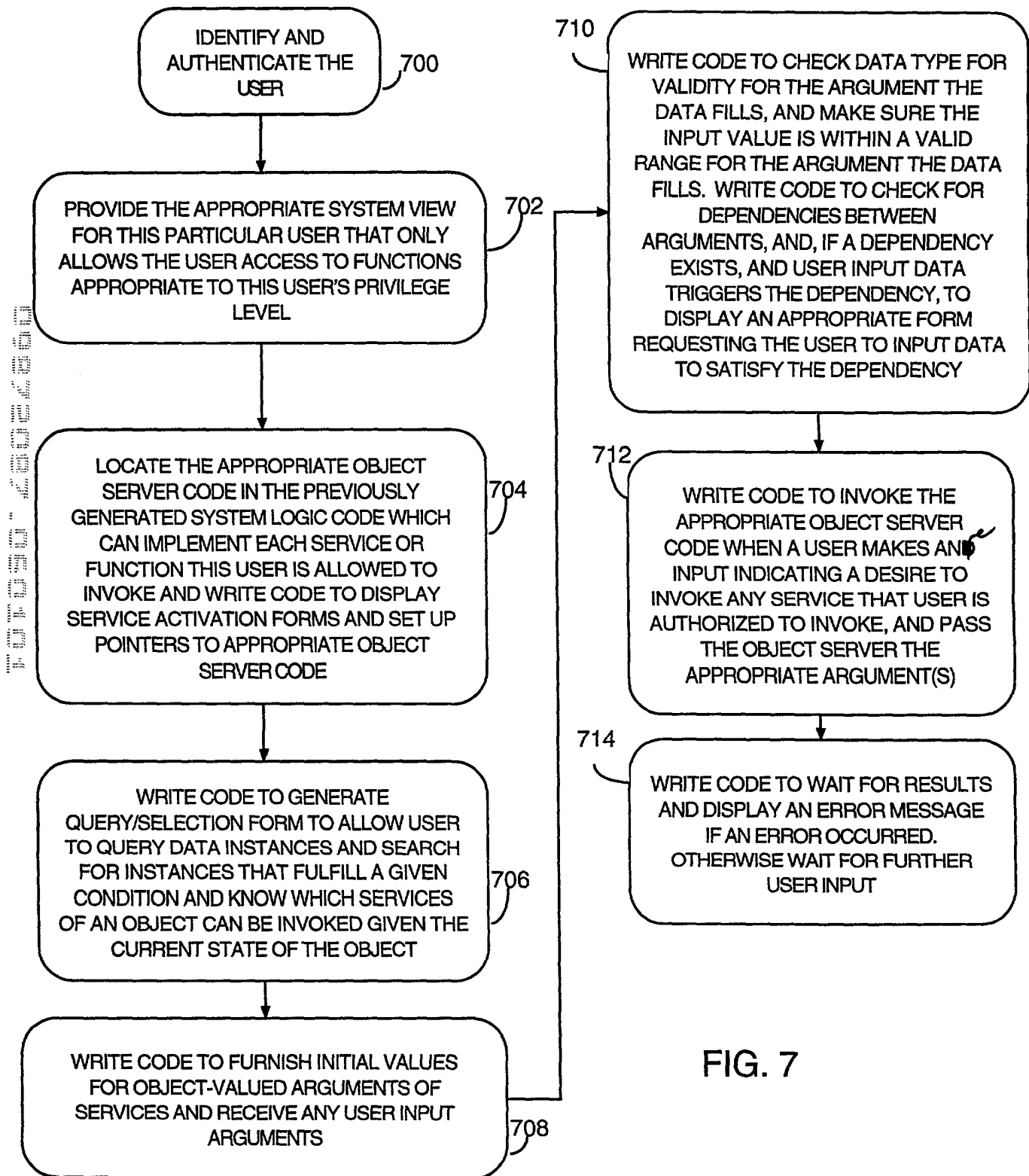


FIG. 7

FLOWCHART OF THE FUNCTIONS THAT ALL SPECIES IN THE DATABASE GENERATOR
TRANSLATOR SUBGENUS WILL PERFORM

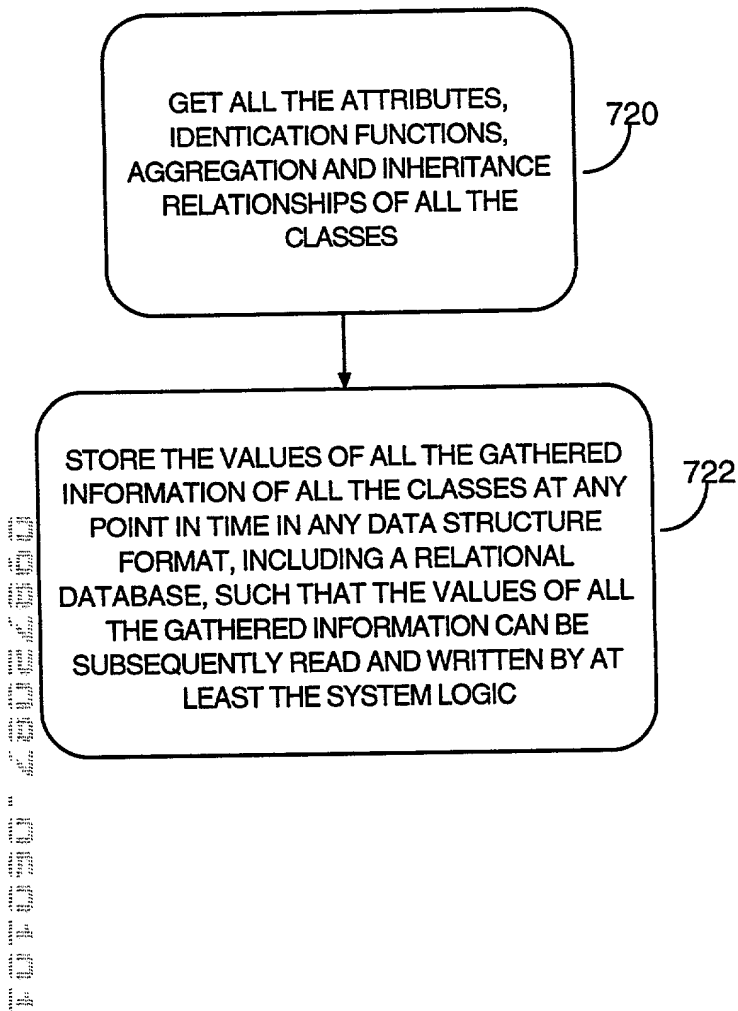
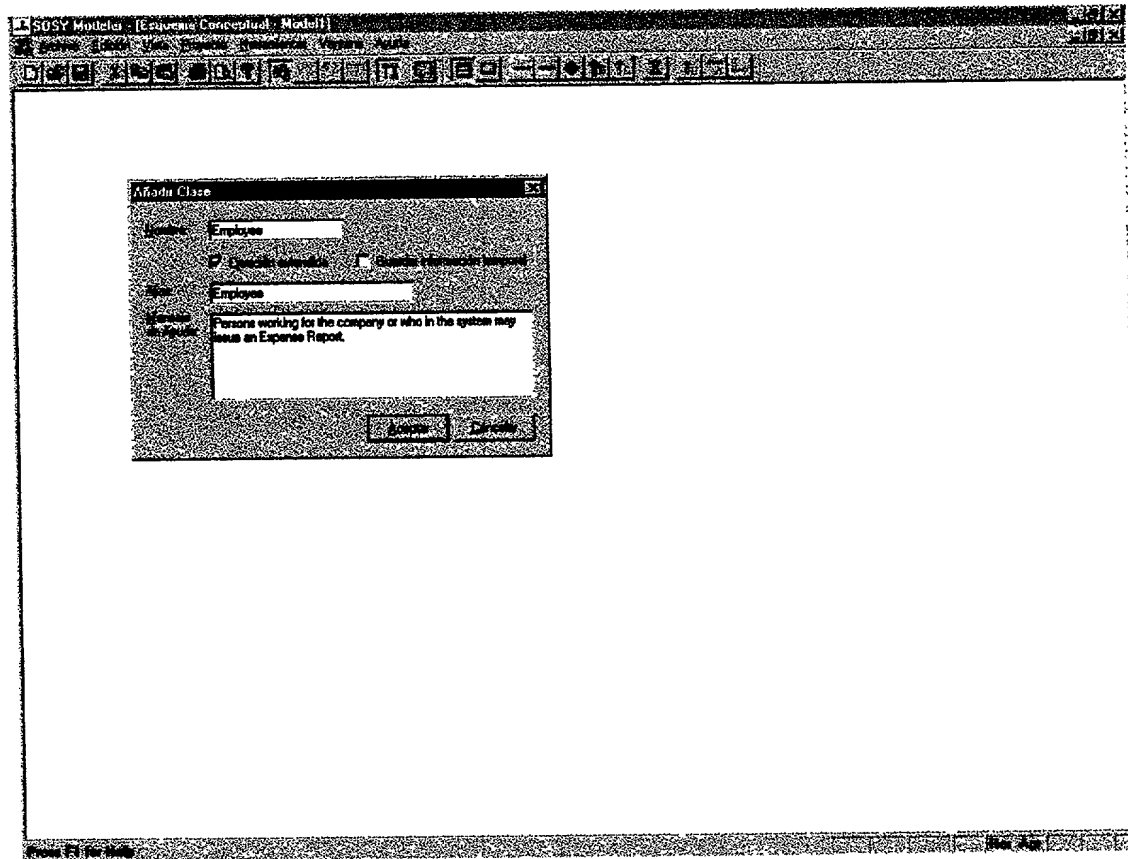
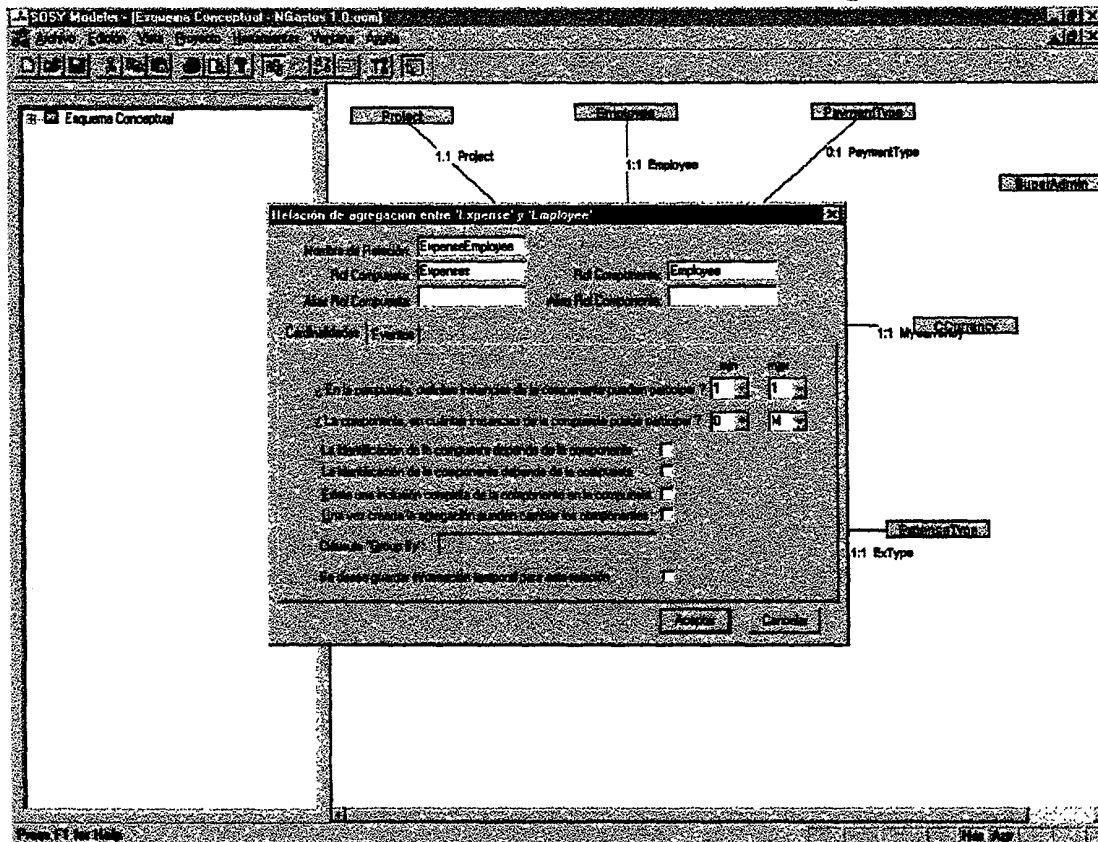


FIG. 8



class creation dialog

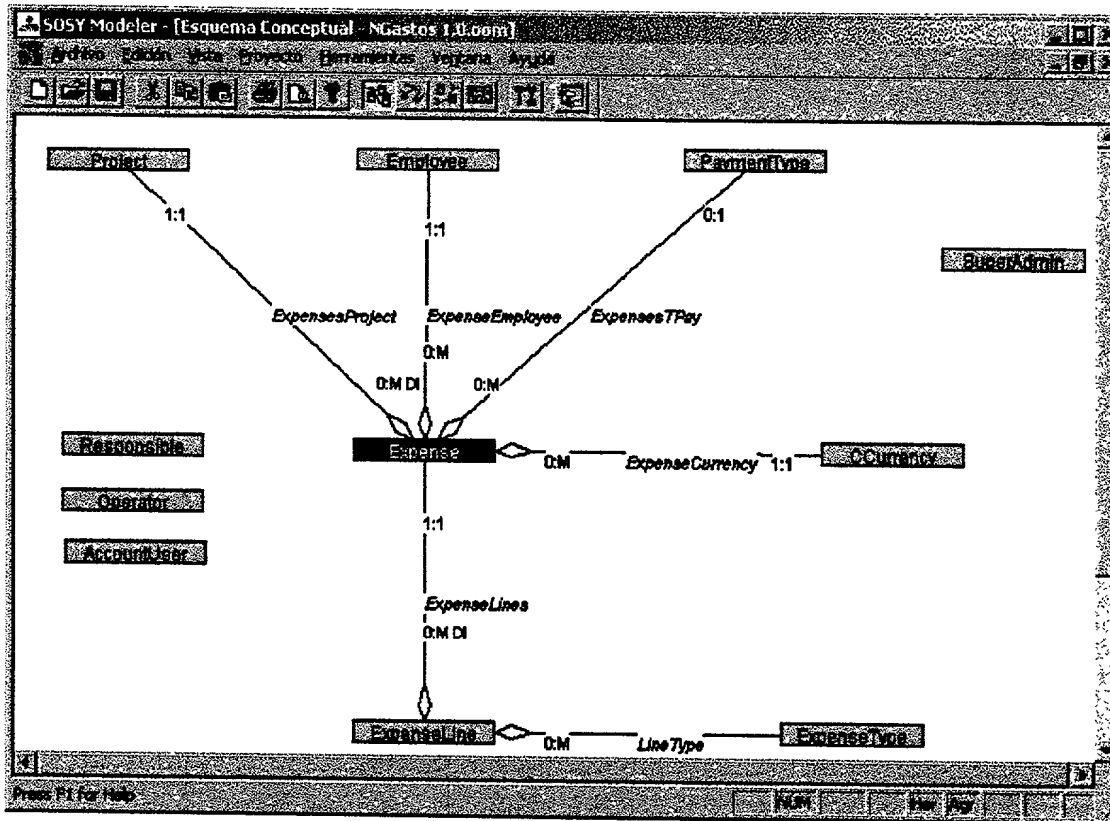
FIG. 9A



dialog to create and modify relationships between classes

FIG. 90

figure shows relationships found with all their properties indicated.



GRAPHIC DIALOG TO CREATE
RELATIONSHIPS BETWEEN CLASSES
AND GRAPHICALLY SHOW THE
RELATIONSHIPS SO CREATED

FIG. 10

Clase

Atributos | Servicios | Derivaciones | Restricciones | Agentes | Transacciones | Relaciones | Generalidades

Atributos

Nombre	Tipo atributo	Tipo dato	Id	Tamaño	Valor default	Padre al crear	Nulo
PresentDate	Constante	Date			today()	Si	No
Status	Variable	Int			0	No	No
Cause	Variable	String	255			Si	No
AuthoDate	Variable	Date			NULL	No	Si
AuthoComments	Variable	String	255		NULL	No	Si
PaymentDate	Variable	Date			NULL	No	Si
PayComments	Variable	String	255			No	Si
TotExpenses	Derivado	Real					
TotExpensesCur	Derivado	Real					
Advances	Variable	Real			0	Si	No
AdvancesCur	Derivado	Real					
Exchange	Variable	Real				No	Si
Balance	Derivado	Real					
BalanceCur	Derivado	Real					

Nombre: Tipo Atributo: Tipo Dato:

☐ Información Temporal

Alias:

Observaciones:

Clase: **Expense**

Aceptar Cancelar

(A)

Clase

Atributos | Servicios | Derivaciones | Restricciones | Agentes | Transacciones | Relaciones | Generalidades

Atributo: **Balance**

Fórmulas de Derivación

Condición	Fórmula
	TotExpenses - Advances

Condición:

Fórmula:

Observaciones:

Clase: **Expense**

Aceptar Cancelar

(B)

FIG. 11

Class

Attributes Services Relationships Associations Transitions Relationships Generalization

Expense Transitions

Services

Number	Category/Action
newExpense	New
delExpense	Destroy
modify	
close	
authorize	
approve	
pay	
rejectauth	
rejectpayment	
firstPaymentType	Shared with PaymentType
lastPaymentType	Shared with PaymentType
DELETEALL	Tran
TPAY	Tran

Parameters

Number	Type/data
p_firstExpense	Expense
p_Cause	String
p_Advances	Real
p_Exchange	Real

Expense

Attributes

Number	Type/data
Number	Integer
Type	String

Expense

Relationships

Number	Type/data
Relationship	String

Expense

Associations

Number	Type/data
Association	String

Expense

Transitions

Number	Type/data
Transition	String

Expense

Generalization

Number	Type/data
Generalization	String

Expense

Class Expense

Buttons Accept Cancel

SERVICES OF CLASS "EXPENSE"
FIG. 12

Next figure shows the formula for the "DELETEALL" transaction:

The screenshot shows a software dialog box titled "Class" with a tabbed interface. The "Transactions" tab is selected. The "Transaction" field contains "DELETEALL". The "Formula" text area contains the code: `FOR ALL Lines DO Lines.deleteLine(Lines). deleteExpense(THIS)`. Below the formula, the "Action" section includes a "Class/Proc" dropdown set to "Expense" and a "Details" button. The "Agent" field is empty. The "Service" dropdown is set to "approve". The "Postcode" dropdown is set to "p_thisExpense". The "Initials" field is empty. There is a checkbox labeled "Use Parameters in the Transaction" which is unchecked. To the right of these fields are three radio buttons labeled "or", "and", and "xor", with "or" selected. An "Observations" text area is at the bottom left. At the bottom right, there are "Accept" and "Cancel" buttons. The "Class" dropdown at the bottom left is set to "Expense".

DIALOG TO DEFINE FORMULA FOR "DELETEALL"
TRANSACTION
FIG. 13

Clase

Arbitrios | Servicios | Derivaciones | Restricciones | Agentes | Transacciones | Relaciones | Generalidades

Exclusiones

Exchange > 0

4 1

Aplicar
Modificar
Borrar
Novedades

Fórmula: Exchange > 0

Mensaje De Error: Exchange must be greater than zero

Opciones

4 1

Aplicar
Modificar
Borrar

Tipo Temporal: Condición: Tipo Temporal: Condición:

Fórmula:

Mensaje De Error:

Clase: Expense

INTEGRITY CONSTRAINTS OF EXPENSE CLASS
FIG. 14

The value of the attribute "Cause" will be loaded with the value of the argument "p_Cause" of the event "modify" when "modify" was executed.

Modelo Funcional

Clase: Expense Atributo: Cause

Evento	Efecto	Condición
modify	p_Cause	

Categoría

☐ Cardinal ☒ De Estado ☐ De Situación

Detalles de Evaluación

Evento: modify

☐ Inferir para el resto de atributos

Condición de evaluación: 724

IF:

Efecto del evento: 726

p_Cause

Aceptar Cancelar Añadir Modificar Borrar

DIALOG BOX TO CREATE EVALUATION OF
"CAUSE" ATTRIBUTE WITH THE
"MODIFY" EVENT TO FORM PART OF
FUNCTIONAL MODEL
FIG. 15

Clase

Clase proveedora:

Servicios

Servicio
newexpense
modify
close
authorize
rejectautho
DELETEALL

Clase AccountUser agente da:

Servicio	Temporalidad
Expense.approve	No
Expense.rejectpayment	No
Expense.TPAY	No

Clase AccountUser tiene visibilidad sobre:

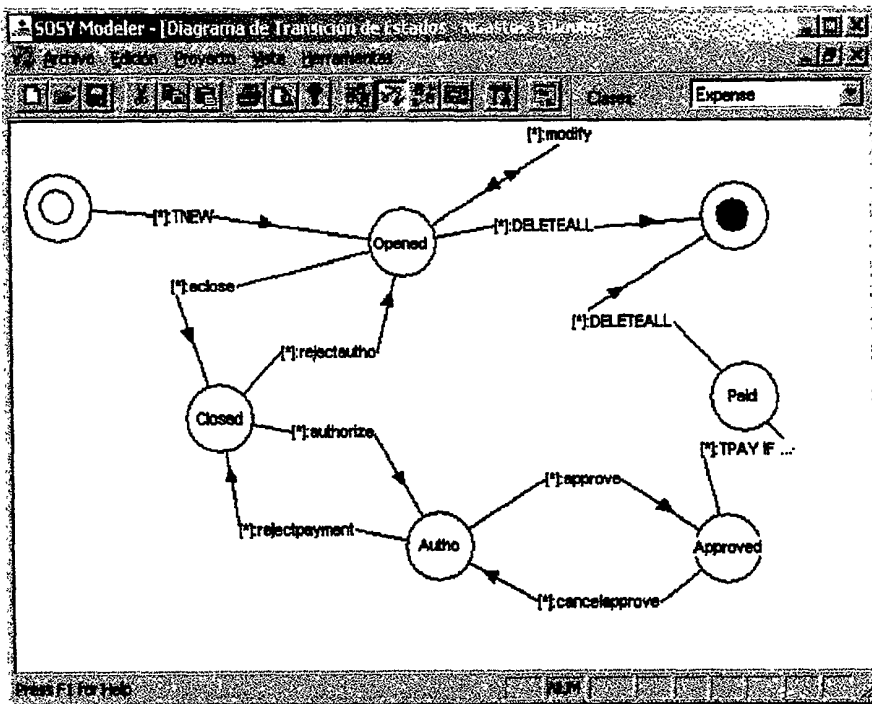
Atributos

Atributos
Cause
AuthoComments

Clase:

AGENT RELATIONSHIP DIALOG THAT CAN BE
 USED TO SET WHICH SERVICES "ACCOUNTUSER"
 CAN ACCESS AND VISIBILITY OF CLASS
 ATTRIBUTES FOR THIS USER

FIG. 16



STATE TRANSITION DIAGRAM FOR CLASS "EXPENSE"

FIG. 17

According to last paragraph of Procedure, if the Advances are greater than total expenses, the system must force the confirmation of the account user. It is expressed as a precondition in the "TPAY" transaction. Next figure shows it.

The image shows a software dialog box titled "Transición". It contains several fields and buttons:

- Origen:** A dropdown menu with "Approved" selected.
- Destino:** A dropdown menu with "Paid" selected.
- Buttons:** "Aceptar" (Accept) and "Cancelar" (Cancel) are located in the top right corner.
- Detalles:** A section containing:
 - Account:** A dropdown menu with "AccountUser" and "SuperAdmin" options.
 - Service:** A dropdown menu with "TPAY" selected.
 - Precondición:** A text area containing the logical expression: `Balance > 0 OR ps_ReturnAdvance = TRUE`.
 - Condición de control:** An empty text area.
 - Mensaje en caso de Error:** A text area containing the message: "Check the advanced money excess".

DIALOG BOX TO MODEL PRECONDITION

FIG. 18

Conjunto de Visualización

Nombre:

Atributos a visualizar:

Atributo	Tipo dato
Project.ProjectName	String
Employee.EmpName	String
Employee.EmpSur...	String
Status	Int
AuthoDate	Date
PaymentDate	Date
TotExpenses	Real
Balance	Real

Atributos:

Atributo	Tipo dato
Cause	String
AuthoDate	Date
AuthoComments	String
PaymentDate	Date
PayComments	String
TotExpenses	Real
TotExpensesCur	Real
Advances	Real
AdvancesCur	Real
Exchange	Real
Balance	Real
BalanceCur	Real

Class: Expense

DIALOG BOX USED BY SOSY MODELER
TO ESTABLISH A SET OF ATTRIBUTES
TO BE DISPLAYED FOR THE "EXPENSE" CLASS

FIG. 19

Filtro

Filtro: Alias:

Fórmula: << Variable

Observ:

Variables

Nombre	Alias	Tipo dato	Tipo estilo	Estilo	
vf_Project	Project	Project	Sel. Población		Nueva
vf_Employee	Employee	Employee	Sel. Población		Modificar
vf_DateIniIssue	Initial Issuing Date	Date			Borrar
vf_DateEndIssue	Final Issuing Date	Date			
vf_DateIniApp	Initial Approving D...	Date			

Tipo: ☒ Simple ☐ Objeto-valorado

Nombre: Estilo de inicial:

Alias: Estilo de selección:

Tipo de dato:

Clase:

DIALOG BOX USED BY SOSY MODELER
TO ESTABLISH THE SEARCHING CRITERIA
FOR THE EXPENSE CLASS AND TO ESTABLISH
THE FILTER FORMULA ^{TO USE} AND THE VARIABLES
TO REQUEST THE USER TO ENTER

FIG. 20

FLOWCHART OF THE FUNCTIONS THAT ALL SPECIES IN THE DOCUMENTATION
GENERATOR TRANSLATOR SUBGENUS WILL PERFORM

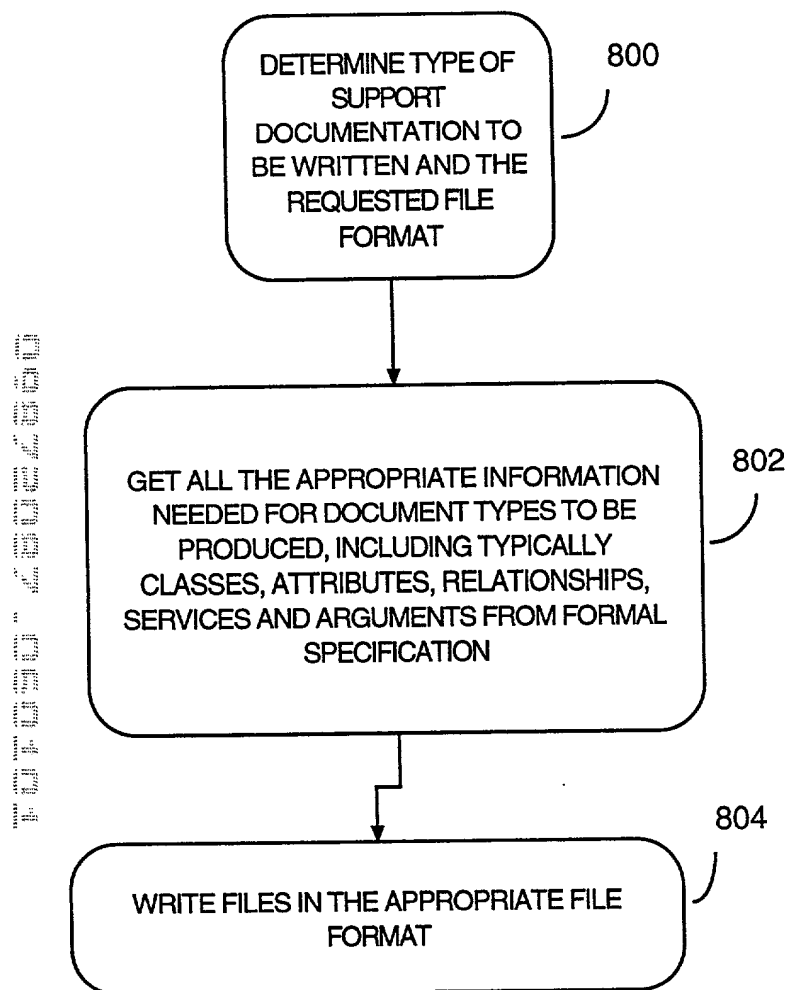


FIG. 21

